

TEST REPORT OF CLASSIFICATION FOR DANGEROUS GOODS – LITHIUM METAL AND LITHIUM ION BATTERIES

New Application Modification Other:

Report ID: 20220606J14115

Sample Name: Li-ion Battery Pack

Model/Type: a-TroniX Storagepower 2,3kWh
Batterie / 76.8V 30Ah 2304Wh

Applicant: AKKU SYS Akkumulator- und
Batterietechnik Nord GmbH



中认英泰检测技术有限公司
CQC Intime Testing Technology Co.,Ltd.

TEST REPORT

Report ID: 20220606J14115

Test Unit: CQC Intime Testing Technology Co., Ltd

Address: East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.

Postal code: 215104 **Phone:** 0512-66303623 **Fax:** 0512-66303625

Testing location/procedure: East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.

Applicant's name: AKKU SYS Akkumulator- und Batterietechnik Nord GmbH

Address: Verbindungsweg 23, 25469 Halstenbek, Germany

Sample Name: Li-ion Battery Pack

Trade Mark: a-TroniX

Model/Type: a-TroniX Storagepower 2,3kWh Batterie

Ratings: 76.8V 30Ah 2304Wh

Manufacturer: HANGZHOU RUILI CHAOSHENG TECHNOLOGY CO., LTD

Address: No.118, GAOERFU ROAD, FUYANG DISTRICT, HANGZHOU

Standard Specification: UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3. Rev.6

Test Procedure: —

Non-standard Test Method: —

Test Item: Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Crush, Force Discharge

Date of receipt of test item: 2022.06.01

Finished Date: 2022.06.10

Conclusion: The Submitted Sample(s) Meet the Requirement of the Standard.

Testing Conditions: Temperature: 22.1°C ~ 24.6°C Relative Humidity: 37.9%~58.1%

Engineer: Wang Litong Signature: Date: 2020.06.10

Auditor: Hou Fengwen Signature: Date: 2020.06.10

Approver: Zhao Runsheng Signature: Date: 2020.06.10


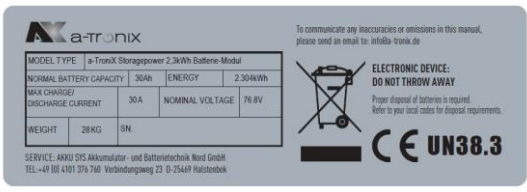
Seal of CQC IT

Date of issue:

2022.06.10

Remark: (1) P : Test object does meet the requirement. (2) F: Test object does not meet the requirement.
(3) N/A: Test case does not apply to the test object. (4) ---: Test case does not conduct

Change Confirmation Form

No.	Items	Before changed	After changed
1	Change of applicant's name	Wuxi Wattsonic Energy Technology Co., Ltd	AKKU SYS Akkumulator- und Batterietechnik Nord GmbH
2.	Change model's name	SOL-R24-2.3KWH	a-TroniX Storagepower 2,3kWh Batterie
3.	Rating label		
4.	Safety Test	Report No.: 20191005J22091	<p>This application is a change request for changing the applicant's name, Change model's name, rating label. There is no change in the cells, the internal structure or the electrical parameters. According to clause 38.3.2.2 of the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, its safety performance will not be affected and no testing is required. The test data is cited from the report No. 20191005J22091.</p> <p>The new report number is: 20220606J14115</p>

The table of Cell Fundamental Parameters

No	Name	Model/Type	Manufacturer	Remarks
1	BMS	BMS3100	Hangzhou Xieneng Technology Co., Ltd.	--
2	Cell	92161227	Sichuan Lvxin Power Technology Co., LTd.	--
3	Intercell Tabs	--	--	--
4	Plastics Cases and Lids	Aluminium alloy	Wuxi Tongzeda	--
5	Fuse	--	--	--
6	--	--	--	--
7	--	--	--	--

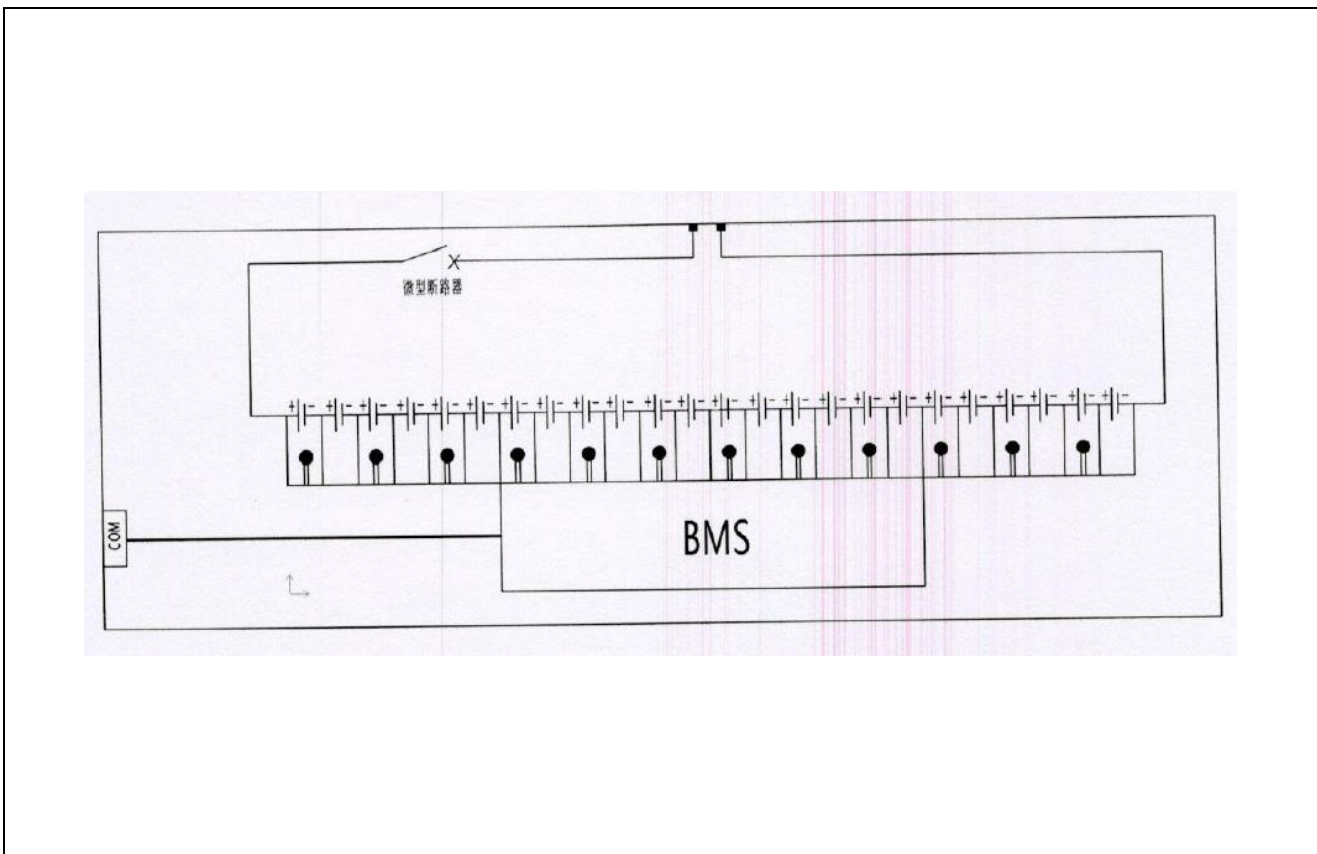
Cell Main Chemical Composition

No	Name	Component	Manufacturer	Remarks
1	Cathode Material	LiFePO4	Dynanonic	--
2	Anode Material	Graphite	Shanghai Shanshan	--
3	Conductive Agent	--	--	--
4	Binder	--	--	--
5	Seperator	PE	Tianjin Kaipuruite	--
6	Electrolyte	LiPF6	Guangzhou Tianci	--
7	--	--	--	--
8	--	--	--	--

The Table of Battery Module Fundamental Parameters

Item	Rated Performance	Item	Rated Performance
Nominal capacity (Ah)	30	Nominal voltage(V)	76.8
Rated power(Wh)	2304	Limited charge voltage(V)	87.6
Charge current(A)	30	Maximum continous charging current (A)	30
End charge current(A)	1	Discharge current(A)	30
Cut-off voltage (V)	67.2	Cell numbers	24
Maximum discharge current(A)	30	Type of cell	Pouch cell
Permutation of cell	1P24S	Capacity of cell(Ah)	30

The Battery Electrical Connection Diagram



Sample photograph-1



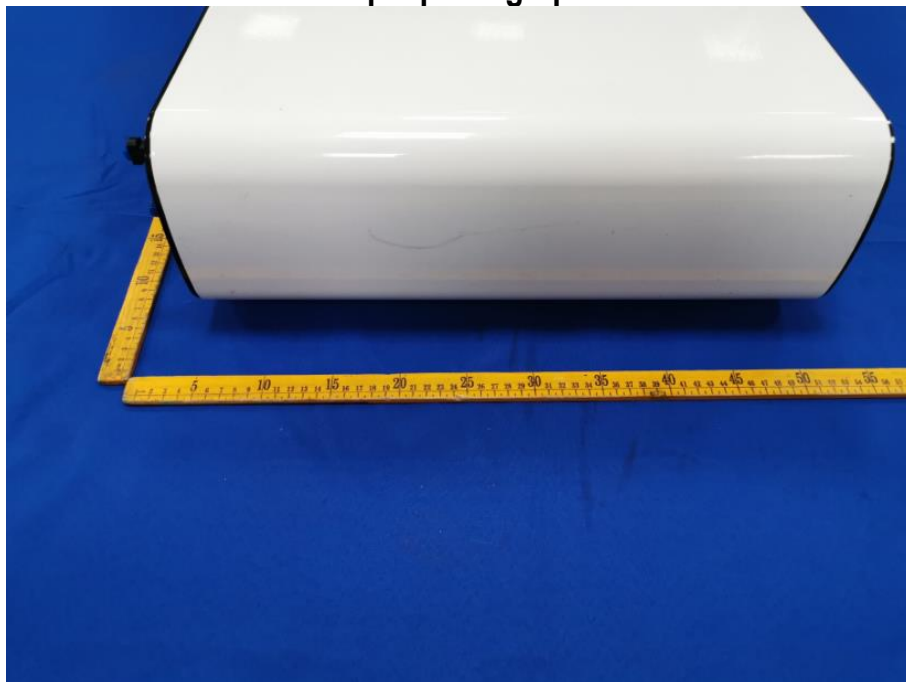
Sample photograph-2



Sample photograph-3



Sample photograph-4



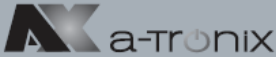
Sample photograph-5



Sample photograph-6




Sample photograph-7




To communicate any inaccuracies or omissions in this manual, please send an email to: info@a-tronix.de

MODEL TYPE	a-TroniX Storagepower 2,3kWh Batterie-Modul		
NORMAL BATTERY CAPACITY	30Ah	ENERGY	2.304kWh
MAX CHARGE/ DISCHARGE CURRENT	30A	NOMINAL VOLTAGE	76.8V
WEIGHT	28 KG	SN.	



**ELECTRONIC DEVICE:
DO NOT THROW AWAY**

Proper disposal of batteries is required.
Refer to your local codes for disposal requirements.

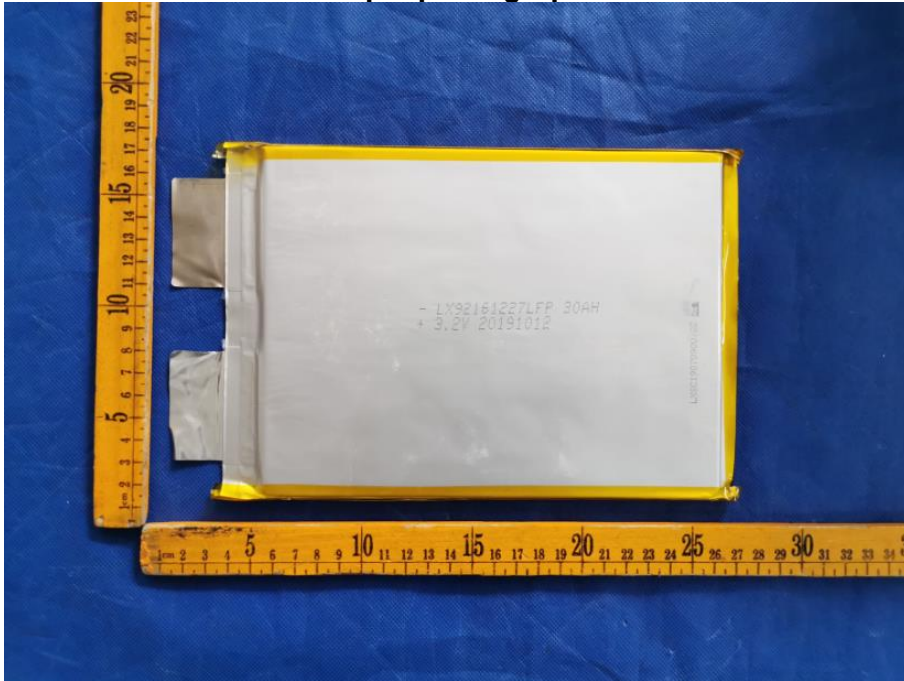

UN38.3

SERVICE: AKKU SYS Akkumulator- und Batterietechnik Nord GmbH
TEL: +49 (0) 4101 376 760 Verbindungsweg 23 D-25469 Halstenbek

Sample photograph-8



Sample photograph-9



Sample photograph-10



CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.1 Altitude simulation	<p>Battery at first cycle in fully charged state.</p> <p>Test batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature (20 ± 5°C).</p>	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.</p>	/	Group1 Group2	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss. Test data is shown in Annex 1.</p>	P
	<p>Battery after 25 cycles in fully charged state.</p> <p>Test batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature (20 ± 5°C).</p>		/	Group3 Group4		P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, subsection 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.2 Thermal test	Battery at first cycle in fully charged state. Test batteries are to be stored for at least six hours at a test temperature equal to $75\pm 2^{\circ}\text{C}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$).	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	/	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss. Test data is shown in Annex 2.	P
	Battery after 25 cycles in fully charged state. Test batteries are to be stored for at least six hours at a test temperature equal to $75\pm 2^{\circ}\text{C}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$).		/	Group3 Group4		P

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CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.3 Vibration	<p>Battery at first cycle in fully charged state.</p> <p>Batteries are firmly secured to the platform of the vibration machine without distorting the cells. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.</p>	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.</p>	/	Group1 Group2	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage No mass loss. Test data is shown in Annex 3.</p>	P

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CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.3 Vibration	<p>Battery at 25 cycle in fully charged state.</p> <p>Batteries are firmly secured to the platform of the vibration machine without distorting the cells. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.</p>	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.</p>	/	Group3 Group4	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage No mass loss . Test data is shown in Annex 3.</p>	P

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CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.4 Shock	<p>Battery at first cycle in fully charged state.</p> <p>Test batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery.</p> <p>Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g n (or Acceleration(g n) = $\sqrt{\left(\frac{100850}{mass}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g n (or Acceleration(g n) = $\sqrt{\left(\frac{30000}{mass}\right)}$, which is smaller) and pulse duration of Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.</p>	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.</p>	/	Group1 Group2	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss . Test data is shown in Annex 4.</p>	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.4 Shock	<p>Battery after 25 cycles in fully charged state.</p> <p>Test batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery.</p> <p>Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g n (or Acceleration(g n) = $\sqrt{\left(\frac{100850}{mass}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g n (or Acceleration(g n) = $\sqrt{\left(\frac{30000}{mass}\right)}$, which is smaller) and pulse duration of Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.</p>	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.</p>	/	Group3 Group4	<p>No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss . Test data is shown in Annex 4.</p>	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.5 External short circuit	<p>Battery at first cycle in fully charged state.</p> <p>The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4°C and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 57 ±4°C. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4°C. The battery must be observed for a further six hours for the test to be concluded.</p>	<p>External temperature does not exceed 170°C. No disassembly No rupture No fire</p>	/	<p>Group1 Group2</p>	<p>External temperature does not exceed 170°C. No disassembly No rupture No fire Test data is shown in Annex 5.</p>	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.5 External short circuit	<p>Battery after 25 cycles in fully charged state.</p> <p>The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $57\pm 4^{\circ}\text{C}$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $57\pm 4^{\circ}\text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm 4^{\circ}\text{C}$. The battery must be observed for a further six hours for the test to be concluded.</p>	<p>External temperature does not exceed 170°C. No disassembly No rupture No fire</p>	/	Group3 Group4	<p>External temperature does not exceed 170°C. No disassembly No rupture No fire Test data is shown in Annex 5.</p>	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.6 Crush	<p>Cell at first cycle at 50% of the design rated capacity.</p> <p>A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached.</p> <p>(a) The applied force reaches 13 kN ± 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. Once the maximum pressure has been obtained, the voltage drops by 100 mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for a further 6h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests.</p>	<p>External temperature does not exceed 170°C. No disassembly No fire</p>	/	1 # 2 # 3 # 4 # 5 #	<p>External temperature does not exceed 170°C. No disassembly No fire Test data is shown in Annex 6.</p>	P

*: Component Cells of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.7 Overcharge	<p>Battery at first cycle in fully discharged state.</p> <p>The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows:</p> <p>(a) When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.</p> <p>(b) When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.</p> <p>Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.</p>	<p>No disassembly No fire</p>	/	/	Not equipped with battery overcharge protection	N/A

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.7 Overcharge	<p>Battery after 25 cycles in fully charged state.</p> <p>The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows:</p> <p>(c) When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.</p> <p>(d) When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.</p> <p>Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.</p>	<p>No disassembly No fire</p>	/	/	Not equipped with battery overcharge protection	N/A

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.8 Forced discharge	<p>Battery at first cycle in fully discharged state.</p> <p>Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer.</p> <p>The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere).</p> <p>The test sample shall be observed for a further 7 days.</p>	<p>No disassembly No fire</p>	/	6#-15#	<p>No disassembly No fire Test data is shown in Annex 7</p>	P

*: Component Cells of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Unit	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.8 Forced discharge	<p>Battery after 50 cycles in fully charged state.</p> <p>Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer.</p> <p>The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere).</p> <p>The test sample shall be observed for a further 7 days.</p>	No disassembly No fire	/	16#-25#	No disassembly No fire Test data is shown in Annex 7	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

List of Test Equipment

No	Test Equipment	Equipment Model	Equipment No
1	Low Pressure Chamber	315Z	ITCS1206013
2	Thermal Shock Chambers	KWGDS61	ITCB16001
3	Vibration Tester	HV-300-D-25	ITCEN07007
4	Vibration Tester System	DL-8000-80	ITCE11009
5	Battery Shock Tester	IS350	ITCB180207
6	High Temperature Explosion-proof Chamber	BE-101-512A	ITCB16005
7	Battery Impact Tester	H-FZ-500	ITCEN07009
8	Battery Crush Tester	GX-5067-C	ITCB16006
9	Electric Vehicle Battery Tester	BNT100-0100ME	ITCB13010
10	Electric Vehicle Battery Tester	BNT100-0100ME	ITCB13011
11	High Temperature Explosion-proof Chamber	BE-101-512A	ITCB16004
12	Smart Battety Test System	CTE-MCT-1806D-DC20V8A	ITCB13003
13	High-precision battery tester	CT-4004-5V100A-NFA	ITCB15004
14	High Temperature Explosion-proof Chamber	SPHH-101	ITCS06031
15	Battery internal resistance tester	BT3563	ITCB14001
16	Temperature Recorder	MV2020	ITCS111001
17	Digital Multicenter	FLUKE177	ITCS06060-3
18	Electronic Scale	JX-A30002	ITCB170602
19	Electronic Scale	AWH-150TC	ITCH161002
20	Electric Vehicle Battery Tester system	EVT300-0800-4*80KW	ITCB13013

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 1. Altitude Simulation

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ /OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/M ₁ (%)	Remarks
Group 1	First cycle fully charged	82.4	28.69	82.4	28.69	100.00%	0.000%	--
Group 2	First cycle fully charged	82.2	28.70	82.2	28.70	100.00%	0.000%	--
Group 3	After 25 cycles fully charged	82.4	28.58	82.3	28.58	99.88%	0.000%	--
Group 4	After 25 cycles fully charged	82.4	28.79	82.3	28.79	99.88%	0.000%	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 2. Thermal Test

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ / OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/ M ₁ (%)	Remarks
Group 1	First cycle fully charged	82.4	28.69	80.7	28.68	97.94%	0.035%	--
Group 2	First cycle fully charged	82.2	28.70	80.6	28.69	98.05%	0.035%	--
Group 3	After 25 cycles fully charged	82.3	28.58	80.8	28.57	98.18%	0.035%	--
Group 4	After 25 cycles fully charged	82.3	28.79	80.6	28.78	97.93%	0.035%	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

TEST REPORT**Annex 3. Vibration**

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ /OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/M ₁ (%)	Remarks
Group 1	First cycle fully charged	80.7	28.68	80.5	28.67	99.75%	0.035%	--
Group 2	First cycle fully charged	80.6	28.69	80.5	28.68	99.88%	0.035%	--
Group 3	After 25 cycles fully charged	80.8	28.57	80.6	28.56	99.75%	0.035%	--
Group 4	After 25 cycles fully charged	80.6	28.78	80.5	28.78	99.88%	0.000%	--
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Remarks:**NL:** No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire**LK:** Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 4. Shock

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ / OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/ M ₁ (%)	Remarks
Group 1	First cycle fully charged	80.5	28.67	80.4	28.66	99.88%	0.035%	--
Group 2	First cycle fully charged	80.5	28.68	80.4	28.68	99.88%	0.000%	--
Group 3	After 25 cycles fully charged	80.6	28.56	80.4	28.55	99.75%	0.035%	--
Group 4	After 25 cycles fully charged	80.5	28.78	80.3	28.77	99.75%	0.035%	--
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Remarks:
NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 5. External Short Circuit

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
Group 1	First cycle fully charged	80.4	56.9	57.0	--
Group 2	First cycle fully charged	80.4	56.9	57.0	--
Group 3	After 25 cycles fully charged	80.4	57.1	57.2	--
Group 4	After 25 cycles fully charged	80.3	57.1	57.1	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 6. Crush

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
1#	First cycle in 50% rated capacity	3.295	23.8	23.9	--
2#	First cycle in 50% rated capacity	3.294	23.6	23.6	--
3#	First cycle in 50% rated capacity	3.295	23.8	23.8	--
4#	First cycle in 50% rated capacity	3.295	23.6	23.6	--
5#	First cycle in 50% rated capacity	3.295	23.5	23.5	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 7. Force Discharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
6 #	First cycle in fully charged	2.840	23.6	44.3	--
7#	First cycle in fully charged	2.872	23.6	45.7	--
8#	First cycle in fully charged	2.900	23.8	46.5	--
9#	First cycle in fully charged	2.880	24.1	42.9	--
10#	First cycle in fully charged	2.840	24.0	44.6	--
11#	First cycle in fully charged	2.902	23.8	48.0	--
12#	First cycle in fully charged	2.917	23.6	46.5	--
13#	First cycle in fully charged	2.917	23.7	47.2	--
14#	First cycle in fully charged	2.917	23.8	44.9	--
15#	First cycle in fully charged	2.886	23.8	46.8	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 7. Force Discharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
16#	After 50 cycles in fully charged	2.884	23.9	47.5	--
17#	After 50 cycles in fully charged	2.880	23.8	48.1	--
18#	After 50 cycles in fully charged	2.889	23.9	47.6	--
19#	After 50 cycles in fully charged	2.922	23.6	46.5	--
20#	After 50 cycles in fully charged	2.913	23.8	45.8	--
21#	After 50 cycles in fully charged	2.894	23.9	48.6	--
22#	After 50 cycles in fully charged	2.889	24.0	47.6	--
23#	After 50 cycles in fully charged	2.905	24.1	46.6	--
24#	After 50 cycles in fully charged	2.894	24.0	45.9	--
25#	After 50 cycles in fully charged	2.895	23.9	47.3	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

—End—

Statement

1. Don't copy the report partly, if you don't obtain the laboratory allows you to do that, unless you copy the whole report.
2. The test report is only valid to the samples which have been tested.
3. You can bring forward written appeal to the laboratory in ten days after you receive the report if you have objection to the test result.
4. The laboratory will deal with samples with itself if client don't take away samples in sixty days after client receive test report.
5. This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.

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